

ALEKSANDROV, N.M.; MOSKALEV, V.V.

Radio-frequency spectrograph for the study of nuclear magnetic
resonance lines of crystals [with summary in English]. Vest.LGU
13 no.16:14-20 '58. (MIRA 11:11)
(Nuclear magnetic resonance) (Spectrograph)

24,7900

S/058/61/000/010/036/100
AC01/A101

AUTHOR: Moskalev, V.V.

TITLE: Determination of the second moment of absorption lines on the basis of derivative of dispersion line

PERIODICAL: Referativnyy zhurnal. Fizika, no.10, 1961, 159, abstract 10V328 (V sb. "Paramagnitn. rezonans", Kazan', Kazansk. un-t, 1960, 84-86)

TEXT: The author proposes a method of determining the second moment S_2 of an absorption line, based on the use of even moments (s'_n) of the dispersion curve. The integrals are calculated in finite limits ($\pm h_0$ from the resonance center), which makes it possible to discard the "tails" of the dispersion curve, known insufficiently accurate. With the aid of Kramers-Kronig relations, a formula has been derived which expresses S_2 in terms of s'_0 , s'_2 , s'_4 and s'_6 ; it assures determination of S_2 with a systematic error of $\sim 1\%$. A formula is also cited which makes it possible to introduce a correction for the finiteness of field modulation amplitude. ✓B

[Abstracter's note: Complete translation]

M. Meyl'man

Card 1/1

S/054/60/000/02/07/021
B022/B007

AUTHORS: Aleksandrov, N. M., Moskalev, V. V.

TITLE: Correction to the Second Moment of the Lines of Nuclear
Magnetic Resonance by Using a Phase Detector

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii,
1960, No. 2, pp. 55-58

TEXT: In the present paper, it is shown that the actual second moment of the nuclear magnetic resonance line may, in the case of a sufficiently slow passage, be calculated from the experimentally found value $\Delta \bar{H}_{\text{exp}}^2$ by means of equation (6): $\Delta \bar{H}_{\text{tr}}^2 = \Delta \bar{H}_{\text{exp}}^2 - (\tau_0 \nu)^2$, where τ_0 is the time constant of the detecting system, and ν - the passage rate through the line (in gauss/sec). $\Delta \bar{H}_{\text{exp}}^2$ must be referred to the observed center of the resonance line or of its differential quotient (which was shifted by the influence of the time constant). The form of the first derivatives of various absorption lines of nuclear magnetic resonance is given (Fig).

Card 1/2

VB

Correction to the Second Moment of the Lines of S/054/60/000/02/07/021
Nuclear Magnetic Resonance by Using a Phase B022/B007
Detector

Several experimentally found criteria of the validity of the equation mentioned are given. The authors thank F. I. Skripov for his valuable advice and for evaluating the work performed. Yu. P. Petrov is mentioned. There are 1 figure and 3 references, 1 of which is Soviet.

✓B

Card 2/2

S/181761/003/010/015/038
B111/B138

AUTHOR: Moskalev, V. V.

TITLE: Calculation of the second moment of nuclear magnetic resonance lines where orbiting clusters are present in the molecule

PERIODICAL: Fizika tverdogo tela, v. 4, no. 10, 1961, 3040-3049

TEXT: The most difficult case in the calculation of the second moment of absorption lines, which arises if there is interaction not only between orbiting clusters, but also between these clusters and motionless nuclei was considered. The general formulas given for a polycrystal by E. K. Andrew (Ref. 4; see below) have only been used for precise calculation where the motionless nucleus rests in the orbital plane of the one being in motion. The present author was concerned with the more general case in which the orbital plane and the motionless nucleus are randomly arranged. A formula given by J. H. Van-Vleck (Ref. 1, Phys. Rev., 74, 1168, 1948) is used as the initial formula. Calculations lead to elliptic integrals of

Card 1/3

Calculation of the second moment of ...

3/18/61/003/010/010/010
B111/B136

the first and second kind. A factor ρ is introduced in such a way that $r^{-6} = \rho n^{-6}$, where r denotes the instantaneous distance between the motionless nucleus and the one in motion, n is the distance between the motionless nucleus and the center of the orbit, $\eta = n_0/R$, R_0 is the orbital radius, and α is the angle included by \vec{R} and the normal to the orbital plane. A general formula is derived for ρ . The approximate formula $\rho = 1 - 3\eta^2 (3 \cos^2 \alpha - 1)$ is indicated for small η . In case of nonuniform orbiting, the additional error of ρ in the most important case $n = 3$ will be about 3 - 4% if $\eta < 0.3$ and $\alpha < 30^\circ$. V. N. Krasil'nikov and P. I. Skripov are thanked for advice. There are 1 figure, 1 table, and 3 non-Soviet references. The three most recent references to English-language publications read as follows. J. J. Powles, H. J. Gutowsky, J. Chem. Phys., 21, 1704, 1953. - E. R. Andrew, J. Chem. Phys., 18, 607, 1950. - E. R. Andrew, R. S. Eades, Proc. Roy. Soc., A18, 157, 1953. ✓

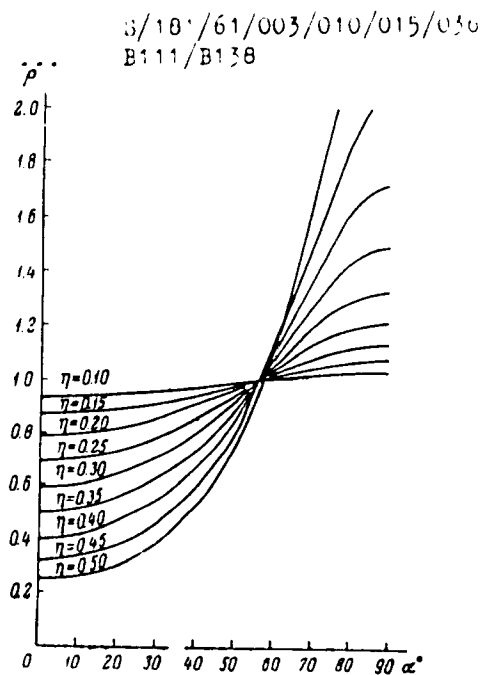
ASSOCIATION. Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanov
(Leningrad State University imeni A. A. Zhdanov)

Card 1/3

Calculation of the second moment of ρ .

SUBMITTED: May 12, 1961

FIG. 1



Card 3/3

L 13037-63 EWA(k)/EWP(j)/EWP(k)/EWT(l)/EWT(m)/BDS/3W2/EEC(b)-2/ES(t)-2
 AFFTC/ASD/ESD-3/RADC/APGC/AFWL Pc-4/Pf-4/Pi-4 RM/JHB/WG/IJP(C)/K/EH
 ACCESSION NR: AP3000620 S/0181/63/005/005/1400/1402
 86
 85

AUTHOR: Moskalev, V. V.; Petrov, M. P.

TITLE: An investigation of the spectrum of nuclear magnetic resonance and the time of spin-lattice relaxation in d-camphor

SOURCE: Fizika tverdogo tela, v. 5, no. 5, 1963, 1400-1402

TOPIC TAGS: nuclear magnetic resonance, spin-lattice relaxation, d-camphor, methyl group, correlation frequency, potential barrier

ABSTRACT: The authors investigated this spectrum through a temperature range from -183 to +150C and determined the values of the potential barrier and the velocities characterizing movements of molecules and molecular groups for corresponding temperature intervals. They computed that at room temperature $V = 3.3$ Kcal/mole and the correlation frequency is 2.5 times 10^{10} cps, values that are in good agreement with experimental data. Above the temperature of phase transition the basic mechanism of relaxation is reorientation of molecules as a whole. Below this temperature such reorientation is absent, and the basic mechanism is reorientation of methyl groups. The authors conclude that to orient

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L 13037-63

ACCESSION NR: AP3000620

methyl groups that make no notable contribution to the relaxation time above the temperature of the phase transition it must be assumed that low-temperature phase transition is accompanied not only by reorientation of the molecules as a whole, but also by a sharp increase in correlation frequency for the methyl group. Orig. art. has: 2 figures, 5 formulas.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 08Jan62

DATE ACQ: 11Jun63

ENCL: 00

SUB CODE: 00

NO REF SOV: 000

OTHER: 003

Card 2/2

DMITRIYEVA, L.V.; MOSKALEV, V.V.

Calculating the second moment of the nuclear magnetic resonance
line in isotropic molecular rotation. Fiz. tver. tela 5 no.8:
2230-2231 Ag '63. (MIRA 16:9)

1. Leningradskiy gosudarstvennyy universitet.
(Nuclear magnetic resonance and relaxation)
(Molecular rotation)

MOSKALEV, V. Ye.: ORLOV, M. V.

Boilers

Use of waste water for feeding boilers, Za ekon. top., No. 2, 1952.

Monthly List of Russian Accessions, Library of Congress, March 1952. Unclassified.

EXCERPTA MEDICA Sec 14 Vol 13/9 Radiology Sent 59

1726. THE EFFECT OF ETHYLENEDIAMINETETRA-ACETIC, SULPHA-SALICYLIC AND AURINTRICARBONIC ACIDS AND A NUMBER OF OTHER PREPARATIONS ON THE DISTRIBUTION OF Ce^{144} AND Y^{91} (Russian text) - Moskalev Ya. I. - MED. RADIOL. 1958, 3/6 (35-40) Tables 6

A comparative analysis is made of the effect of chiniofon, cinchophen, aminophylline, and hexametaphosphate, as well as of sulphasalicylic, aurintricarboic and ethylenediaminetetra-acetic acids and certain other preparations on the distribution and excretion of Ce^{144} and Y^{91} . It was established that hexametaphosphate is the most effective preparation for the acceleration of Ce excretion, while ethylenediaminetetra-acetic acid is best in promoting Y excretion. References 10.

87459
S/057/60/030/012/006/011
B019/B056

26.2322
AUTHORS:

Zaydel', A. N., Malyshov, G. M., ~~Moiseyev, Ye. I.~~
Ptitsyna, Ye. A., Sokolova, L. V., and Chashchina, G. I.

TITLE:

Spectral Examinations With "Al'fa" Research Installation
II. Directed Ion Movements

PERIODICAL:

Zhurnal tekhnicheskoy fiziki, 1960, Vol. 16, No. 11
pp. 1433 - 1436

TEXT: Directed ion movements in "Al'fa" were measured by determining the spectral line shift of ions caused by the Doppler effect. The experiments were carried out with a low-dispersion quartz spectrograph and a spectrograph of the type SPG-8 (DFS-8), having a dispersion of $D = 6 \text{ \AA/mm}$. The pictures were taken in tangential direction and, part of the spectrum is shown in Fig.3. The ion velocities calculated from the line shift and the root-mean-square error are given in Table 1. As may be seen, the velocity of directed ion movement does not exceed 10^6 cm/sec , and increases with increasing ion charge. There are

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87457

Spectral Examinations With "Alfa" Research S/057/60/030/017/006/017
Installation. II. Directed Ion Movements B019/B056

3 figures, 1 table, and 5 references: 2 Soviet, 2 US and 1 Swedish

ASSOCIATION: Fiziko-tekhnicheskiy Institut AN SSSR (Institute of
Physics and Technology of the AS USSR). Nauchno-
issledovatel'skiy institut elektrofizicheskoy apparatury
(Scientific Research Institute of Electrophysical
Apparatus)

SUBMITTED: July 15, 1960

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87459
S/057/60/030/012/006/011
B019/B056

H_{λ} спет.		180		360		540	
Ион	U, кв.	V_H	V_{cp}	V_H	V_{cp}	V_H	V_{cp}
C III	10	—	—	—	—	—	—
	15	—	—	0.5 ± 0.1	—	—	—
O III	10	0.3 ± 0.2	3.1	0.0 ± 0.1	3.4	0.2 ± 0.1	3.4
	15	0.3 ± 0.1	3.4	0.2 ± 0.1	3.3	0.3 ± 0.1	3.5
N IV—O IV	10	0.9 ± 0.1	6.0	0.3 ± 0.1	5.9	0.2 ± 0.1	5.3
	15	0.7 ± 0.1	5.6	0.6 ± 0.1	6.2	0.7 ± 0.1	5.7
O V	10	—	—	—	—	—	—
	15	1.0 ± 0.1	7.0	1.0 ± 0.1	8.4	0.9 ± 0.1	7.3

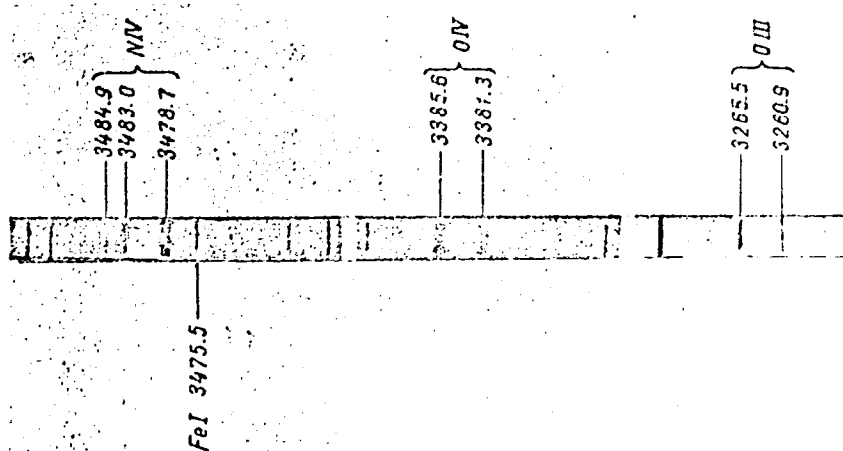
Table 1

Legend to Table 1: H_{λ} in oe, U is the capacitor voltage in kilovolts, V_H is the velocity of the ions in 10^6 cm/sec units, V_{cp} is the root-mean-square error.

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S/057/60/030/012/006/011
B019/B056



Card 4/5

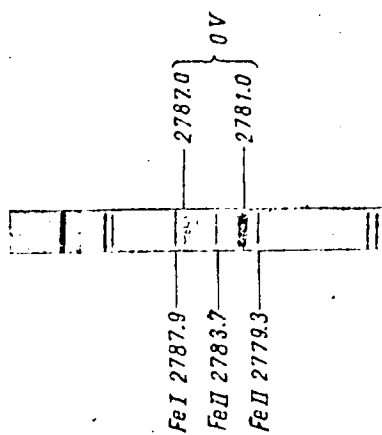


Fig. 3. Участки спектра плазмы, снятые на ФЭС-8.

S/057/60/030/012/006/011
B019/B056

Fig. 3

Card 5/5

WILKINSON, M.W.

Measurement of the ... by ...
... by means of ...
... (P. 1)

MOSKALEV, Yu. I.

Equations describing the equilibrium of the snow cover on
concave and convex parts of slopes. Izv. AN SSSR Ser.
fiz.-mat. nauk 9 no. 3 1965. (MIRA 18:6)

1. Prednaznacheniy: nauchno issledovatel'skiy i inzhenerno-logicheskiy
institut.

MOSKALEV, Y. P.

"On the formation of nuclear power in the USSR."

report to be presented at Int. Symp. on Identifi. Aspects of Nuclear
Aviation, Dares, Switzerland, April 1971.

MOSEKALEV, YU. I.

"The Effect of Prolonged Intake of Radioactive Cerium Through the Gastrointestinal Tract on the Rat Organism," by Yu. I. Moskalev and V. N. Strel'tsova, Meditsinskaya Radiologiya, Vol I, No 6, Nov/Dec 56, pp 14-20

A total of 131 white rats were administered cerium chloride (Ce 144) with their drinking water in daily doses as follows: first group, 1.5 microcuries per day for 100 days; second group, 15 microcuries per day for 100 days; and third group, 150 microcuries per day for 10, 25, 50, and 100 days.

In the resultant radiation sickness, changes in the gastrointestinal tract predominate. In the acute stage an acute, necrotic gastroenterocolitis with atrophy of the spleen and lymphoid tissue results; in the subacute and chronic phases, ulcerative colitis with selective localization of the ulcers in the cecum, the sigmoid colon, and the rectum results. The chronic stage is also accompanied by the development of tumors of the gastrointestinal tract, lungs, mammary glands, endocrine glands, etc.

In the above cases the diagnostic value of the blood indices was insignificant.

Tumors of the gastrointestinal tract and other organs result from identical ionization doses (10-28 krep), whether taken as a single dose or a prolonged dose, which is evidence of accumulation of the dose. (U)

Sum. 1322

S/638/61/003/000/004/005
D296/D307

AUTHOR:

Moskalev, Yu.I.

TITLE:

The role of physical factors in the biological effectiveness of radioactive isotopes

SOURCE:

Trudy Tashkentskoy konferentsii po mirnomu ispol'zovaniyu atomnoy energii, v. 3. Tashkent, Izd-vo AN Uzb.

TEXT: The author reviews the role of physical factors in the biological effectiveness of isotopes on the basis of Soviet and Western literature. The biological effects of an isotope depend not only on the specific distribution in the organs but also on physical properties such as the energy, type of radiation and the half-life. If one judges the toxicity of an isotope only on the basis of the effective dose expressed in curies, differences in the above mentioned physical factors and in the rate of elimination from the body may lead to erroneous conclusions, as the biological effects depend not so much on the rate of disintegration as rather on the dose of radiation emitted in the tissues and on its microgeometrical distribution. The author discusses the biological effects of soft β -rays.

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The role of physical factors in ...

S/638/61/003/000/004/005
D296/D307

frequently higher than the effects of hard β -rays or even α -rays, chronic experiments concerning 'osteotropic' isotopes (varying 'yield' of bone tumors) and data concerning the importance of ionization density and concentration of the radiation. The author emphasizes that physical factors must be taken into account in all attempts to assess the biological effectiveness of radioactive isotopes. There are 4 figures, 1 table and 13 references: 8 Soviet-bloc and 5 non-Soviet-bloc. The most important English-language reference is: M. Finkel, Radiology, v. 67, no. 5, 665, 1956.

ASSOCIATION: Ministerstvo zdorovookhraneniya SSSR (USSR Ministry of Health)

Card 2/2

Atomnaya Energiya

AUTHOR:
TITLE:

IL'IN, D.I., MOSKALEV, YU.I.

PA - 2261

On the Problem of the Exchange of Cesium, Strontium and a Mixture of β -Radiators in the Case of Cows. (K voprosu ob obmene tsesiya, strontsiya i smesi β -izluchateley u korov, Russian).

PERIODICAL:

Atomnaya Energiya, 1957, Vol 2, Nr 2, pp 163 - 168 (U.S.S.R.)
Received: 3 / 1957

Reviewed: 5 / 1957

ABSTRACT:

Method: 6 cows with a weight of from 350 to 500 kg were examined. 4 cows were watered for 4 days with an aqueous solution of a mixture of β -radiators (pH of the solution 5, concentration 0,019 millicurie/l). After 4 days each cow was given 2,6 to 3,5 millicurie with β -rays of the following chemical composition: Nb^{95} - 11%, Zr^{95} - 11%, Ru^{106} - 9%, Cs^{137} - 4%, $Sr^{89,90}$ - 10%, rare earths (together) - 55%. The fifth cow was watered once with 3,45 millicurie in solutions of chlorine salts of Sr^{89} and Sr^{90} , the sixth with 2,2 millicurie Cs^{137} . The activity of the milk and of the urine of the animals watered in this manner was determined. Two cows which were irradiated with β -radiators were slaughtered 14 and 70 days respectively after experiments had begun, and the cows watered with strontium and cesium slaughtered on the 32nd day.
Results: Secretion: Secretion with milk was found to be strongest in the case of cesium, above all because of its considerable re-

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PA - 2261

On the Problem of the Exchange of Cesium, Strontium and a Mixture of β -radiators in the Case of Cows.

sorption from the intestines and because of the fact that exchange takes place much more rapidly than in the case of other elements. The most intense secretion of isotopes with milk occurs during the first days of the experiment. The intensity of the secretion of radioactive elements with milk diminishes gradually and attains its minimum after from 3 to 4 weeks. The concentration of cesium in milk is as a rule 10 to 20 times as high as the concentration of strontium, and a hundred times as high as the concentration of the mixture of β -radiators. These differences apply for the duration of the experiment. Also in milk products the distribution of radioactive elements differs. Cesium Strontium and the mixture of β -radiators are secreted in a different manner also in urine. The main quantity of the radioactive mixture of cesium and strontium are secreted together with the excrements.

The distribution of radioactive substances over the various organs: In the organs of the cows which were slaughtered after 14, 32, and 70 days comparatively small quantities of cesium, strontium, and β -radiators were found. By far the greatest quantity of cesium was found in the muscles, whereas strontium

Card 2/3

PA - 2261
On the Problem of the Exchange of Cesium, Strontium, and a
Mixture of B-Radiators in the Case of Cows.

was deposited mainly in the blood of the animals. From the
intestines of the cows ~50% of the cesium and ~10% of the
strontium are resorbed.

All this proves that the use of radioactive Manure is
dangerous and that animals kept on pastures contaminated by
radioactive substances are liable to suffer damage.
(4 illustrations and 2 tables).

ASSOCIATION: Not given.
PRESENTED BY:
SUBMITTED: 29.3.1956.
AVAILABLE: Library of Congress.
Card 3/3

Country : USSR
 Title : Human and Animal Physiology, Physical Factors T
 Author : Ref Zhur Biol, No. 2, 1959, No. 8573
 Editor : Strel'tsova V; Moskalov Yu.I.
 Institution :
 Title : Long-range Consequences of Single and Chronic Entry of
 Radioactive Isotopes (Ce¹⁴⁴, Ru¹⁰⁶, Sr^{89,90}) through the
 Gastrointestinal tract.
 Journal : Med. radiologiya, 1957, 2, No. 3, 23--34

Summary : White rats were given Ce¹⁴⁴ in single doses of 100--
 100,000 microcuries or daily doses in the drinking water
 of 1.5--150 microcuries in the form of chlorides for a
 period of 100 days. Ru¹⁰⁶ was given in single doses of
 450--7200 microcuries or daily doses of 1.0--800 micro-
 curies. A 9:1 mixture of Sr⁸⁹ and Sr⁹⁰ was given daily
 for a hundred days in amount of 0.03--15 microcuries,
 and a single dose of Sr⁹⁰ amounting to 7.3--360 micro-
 curies was employed. These doses exceed by one to three
 times the maximum allowable. The long-range result of
 their introduction were investigated by means of biopsy
 and necropsy of 264 rats, which succumbed after 200 days
 1/4

Category : Human and Animal Physiology, Physical Factors

Abs. Jour. : Ref Zhur Biol, No. 2, 1959, No. 8573

Author :

Title :

Orig Pub. :

: in the chronic stage of radiation sickness. With prolonged administration of the isotopes, leukopenia developed, which was moderate in degree and disappeared rapidly (with a transition to leukocytosis) upon cessation of administration in the case of Ce^{144} and Ru^{106} , but was more pronounced and lasted as long as the animal lived in the case of $Sr^{90,89}$. The latter isotopes, as they are well reabsorbed in the organism, also led to the development of leukemia (20%). The blastomogenic effect of Se^{144} and Ru^{106} was manifested primarily in the gastrointestinal tract, while $Sr^{89,90}$, which is selectively laid down in the skeleton, led to the forma-

Card:

2/4

Country : USSR
 Category : Human and Animal Physiology, Physical Factors
 Jour. : Ref. Zhur. Biol., No. 2, 1959, No. 8573
 Author :
 Institut. :
 Title :

Orig. Pub. :

Abstract : tion of osteosarcoma. Tumors were also encountered in the mammary glands, glands of internal secretion, kidneys and genitals. With single doses of Ce^{144} and Ru106 intestinal tumors were seen twice as often as with prolonged administration, while the frequency of neoplasm was almost identical for single and prolonged administration of $Sr^{89,90}$. The greatest number of tumors arise when the doses administered exceed the maximum allowable dose by 2 to 3 times. The nonneoplastic forms of disease consisted chiefly in chronic ulcerative and inflammatory processes in the large intestine (in rats receiving Ce^{144} and Ru106), chronic inflammatory processes in

Card:

3/4

3490

17

RADIOACTIVE ISOTOPES AS CANCEROGENIC AGENTS.

Y. N. Brel'tsova and Ye. I. Morkalet. Med. Radiol. 2, No. 5, 39-51 (1957) Sept.-Oct. (In Russian)

A comparative analysis is presented of the cancerogenic effects of 10 radioactive isotopes (Sr^{90} , Er^{147} , mixture of Er^{90} and Er^{147} , Ba^{140} , Y^{90} , Y^{91} , mixture of β emitters, Ca^{45} , Ca^{47} , Nb^{95} , Co^{60} , Pm^{147} , La^{140} , Eu^{154} , and Pu^{239}) which differ in their physical properties and distribution in the organism. The incidence of osteosarcomas depends on the quantity of the radioactive substance introduced and on the period of actual fixation, the higher the effective fixation period the higher is the percentage of tumor development. The optimal osteosarcomagenic dose of absorbed energy is 10 to 20 krep, the minimum dose 2 to 3 krep. The incidence of leukemias induced by radioactive isotopes ranges from 3 to 10%. The type of tumors, the location, and development processes depend on the character of distribution of the radioactive substances. (R.V.J.)

3
1-RML

RML

MOSKALEV, Yu.I.; STREL'TSOVA, V.M. (Moskva)

Effect of transection of the sciatic nerve on the blastomogenic effect of strontium 89 [with summary in English]. Biul.eksp.biol. i med. 44 no.7:96-99 J1 '57. (MIRA 10:12)

1. Predstavlena deystvitel'nyy chlenom AMN SSSR V.M.Chernigovskim.
(STRONTIUM, radioactive,
carcinogenesis, eff. of section of sciatic nerve in
animals (Rus))
(NEOPLASMS, experimental,
eff. of sciatic nerve on carcinogenic eff. of radio-
strontium (Rus))
(NERVES, SCIATIC, physiology,
eff. of section on carcinogenic eff. of radiostrontium
in animals (Rus))

KRAYEVSKIY, N. A.[†], ZAKUTINSKIY, D. I., KURLYANDSKAYA, E. B., MOSKALEV, Y. I.,
STRELTSOVA, V. N., BURYKINA, L. N., LITVINOV, N. N. and SOLOV'YEV, Y. N.

"Long-Term Effects Produced by Small Doses of Radioactive Substances in
Chronical-Experiment."

paper to be presented at 2nd UN Intl. Conf. on the peaceful uses of Atomic
Energy, Geneva, 1 - 13 Sep 58.

EXCERPTA MEDICA Sec 14 Vol 13/6 radiology June 59

1136 THE EFFECT OF COMPLEX PRODUCERS ON THE EXCRETION OF RADIOACTIVE ISOTOPES (STRONTIUM, YTTRIUM AND CERIUM) (Russian text) - Moskalev Yu. I. and Budko L. N. - MED. RADIOL. 1958, 3/5 (5-58) Graphs 5 Tables 2

A comparative analysis of the effect of hexametaphosphate, sulphosalicylic, aurintricarboxylic and ethylenediaminetetraacetic acids, chintophon ('yatren'), cinchophen and aminophylline ('euphylline') on the distribution of Sr^{90} , Y^{91} and Ce^{144} is presented. As compared to other complex formers hexametaphosphate and sulphosalicylic acid appeared to be the most effective. They decreased the content of Y and Ce in the organs of animals and, which is the most important, they also diminished the amount of Sr. In the case of Y, ethylenediaminetetraacetate appeared to be the most effective. The efficacy of complex formers depends on the method of administration of the isotopes. If an isotope enters the blood stream slowly (absorption from a depot) the efficacy of complex formers is intensified. There was a difference in the action of complex formers on the distribution of chemically similar elements (Ce and Y). The results obtained in one radioactive element cannot be mechanically applied to another one. (XIV, 2, 16)

MOSEKALEV, Yu.I.

Effect of ethylenediaminetetraacetic, sulfosalicylic, and aurintricarboxylic acids and a number of other preparations on the distribution of radioactive cerium and yttrium [with summary in English]. Med.rad. 3 no.6:35-40 H-D '58. (MIRA 12:1)

(YTTRIUM, radioactive,
eff. of edathalmil, sulfosalicylic & aurintricarboxylic acids & of other drugs on distribution in animals (Rus))

(ISOTOPES, metabolism,
radiocerium, eff. of edathalmil, sulfosalicylic & aurintricarboxylic acids & of other drugs on distribution in animals (Rus))

(DYES, eff.
aurintricarboxylic acid, on radiocerium & radioyttrium distribution in animals)

MOSKALEV, Yu.I.

Characteristics of distribution and toxicology of radioactive elements
[with summary in English]. Biofizika 3 no.6:725-731 '58. (MIRA 12:1)
(ISOTOPES,
distribution & toxicol. (Rus)

AUTHORS: Il'in, D. I., Moskalov, Yu. I.,
Petrova, A. I.

SOV/89-5-2-11/36

TITLE: On the Accumulation of Radioactive Elements in Some Groups of
Water Organisms (O nakoplenii radioaktivnykh elementov
nekotorymi gruppami vodnykh organizmov)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 2, pp. 171-174 (USSR)

ABSTRACT: β -activities were filled into a natural container of water (e.g.
a lake) of 1,8 m depth, so that the water always had an average
activity of from 2 to 4 $\cdot 10^{-8}$ C/l. The average radio-chemical com-
position of the water was:

Na ²⁴	6%	Ru ¹⁰³ + Ru ¹⁰⁶	5%
Cs ¹³⁷	16%	Zr ⁹⁵ + Nb ⁹⁵	8%
Sr ⁸⁹ + Sr ⁹⁰	48%	Sum of fission products of	
P ³²	5%	rare earths	12%

A number of fishes, plankton, etc. lived in this water. After
having lived in radioactive water for one year the organs of the
following 5 different kinds of fish were investigated:

Card 1/2

36 roaches, 15 perches, 4 pikes, and several types of carp etc.

On the Accumulation of Radioactive Elements in
Some Groups of Water Organisms

SOV/89-5-2-11/36

Furthermore, the activities in the plankton and benthos were investigated. It was found that the plankton, benthos, and the fishes selectively concentrate P^{32} , Sr^{89} , Sr^{90} , Cs^{137} and Na^{24} from the water. The concentration of P^{32} in fishes, in the plankton, and in the benthos exceeds the original concentration in water by 3 - 4 orders of magnitude. In Sr^{89} , Sr^{90} and Cs^{137} an increase of up to 2 - 3 orders of magnitude was measured. From 44 to 59% of the main bulk of β -activities in the organs of fish were found in the muscular tissues, and 16 to 24% in the skeleton. - The concentrations of β -activities in the skeleton, in the gills, fins, and scales is from 3 to 5 times as high as in the soft parts of the body. There are 4 tables and 6 references, 6 of which are Soviet.

SUBMITTED: May 10, 1958

Card 2/2

MOSEKAL'EV, Y. I.

International Conference on the Peaceful Use of Atomic Energy. 24, Geneva, 1958

Doklady sovetskikh uchenykh, radiobiologiya i radiatsionnaya meditsina (Reports of Soviet Scientists; Radiobiology and Radiation Medicine) Moscow, Izd-vo OIAP, spr. po ispol'sovaniju atomnoy energii pri Sovetskom Ministerstve SSSR, 1959. 429 p. 8,000 copies printed. (Series: Vsesoyuznaya nauchnoissledovatel'skaya konferentsiya po mirovomu ispol'sovaniju atomnoy energii. Trudy, tom 5)

General Ed.: A.V. Lebedinskiy, Corresponding Member, USSR Academy of Medical Sciences; Ed.: E.S. Shirokova; Tech. Ed.: Ye.I. Kozel'.

PURPOSE: This book is intended for physicians, scientists, and engineers as well as for professors and students at places where radiobiology and radiation medicine are taught.

COVERAGE: This is Volume 5 of a 6-volume set of reports delivered by Soviet scientists at the Second International Conference on the Peaceful Use of Atomic Energy, held on September 1-15, 1958, in Geneva. Volume 5 contains

Card 1/7

32 reports edited by Candidates of Medical Sciences S.V. Levinitskiy and V.V. Sedov. The reports cover problems of the biological effects of ionizing radiation, future consequences of radiation in small doses, genetic effects of radiation, treatment of radiation sickness, uses of radioactive isotopes in medical and biological research, uses of atomic energy for diagnostic and therapeutic purposes, soil absorption of uranium fission products, their intake by plants, and their storage in plants and foodstuffs. References accompany each report.

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Lebedinskiy, A.V., Ye.G. Grigor'yev, and G.O. Demirchoglyan. Biological Effect of Ionizing Radiation in Small Doses (Report No. 2068)	5
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KOSKALEV, Yu.I.

Effect of polyphosphates on the distribution of Ce^{144} . Med.rad.
4 no.1:65-72 Ja '59. (MIRA 12:2)
(CESIUM--ISOTOPES) (PHOSPHATES)

BURYKINA, L.N.; ZAKUTINSKIY, D.I.; KRAYEVSKIY, N.A.; KURLYANDSKAYA, E.B.; LITVINOV, N.N.;
MOSEKALEV, Yu. I.; NOVIKOVA, A.P.; SOLOV'YEV, Yu. N.; STREL'TSOVA, V.N.

Late sequelae of lesions induced by radioactive substances in small doses
applied in a chronic experiment. Med. rad. 4 no.3:3-6 Apr '59. (MIRA 12:7)

(ISOTOPES, effects,

remote seq. of inj. by small doses of radioactive substances
in animals (Rus))

MOSEKALEV, Yu. L.

Experiments on the distribution of Ce^{144} . Med. rad. 4 no.5:52-58
1959. (MIRA 12:7)

(ISOTOPES, metab.

radiocerium distribution after intravenous, oral & sub-
cutaneous admin. in rats (Rus))

MOSEKALEV, Yu.I.

_____ Data on the distribution of Pb^{147} . Med.rad. 4 no.6:73-75
Je '59. (MIRA 12:8)

(ISOTOPES,

promethonium¹⁴⁷, distribution in animals
(R118))

BULDAKOV, L.A.; IL'IN, D.I. [deceased]; MOSKALEV, Yu.I.

Distribution of strontium-89 and strontium-90 in the organs and
eggs of hens. Biofizika 4 no. 6:738-742 '59. (MIRA 14:4)
(STRONTIUM--ISOTOPES) (POULTRY) (EGGS)

MOSEALEV, Yu.I.

Problems in biophysics and radiobiology at the Ninth Congress of
the All-Union Society of Physiologists, Biochemists, and Pharma-
cologists, Minsk, June 9-18, 1959. Med.rad. 4 no.12:85-87 D '59.
(MIRA 13:5)

(RADIOBIOLOGY)

MOSKALEV, Yu.I.; STREL'TSOVA, V.N.

Blastomogenic activity of cerium¹⁴⁴. Vop.onk. 5 no.6:669-675 '59.
(MIRA 12:12)

1. Iz AMN SSSR, Moskva. Adres avtorov: Moskva, D-182, Shchukinskaya ul.,
d.34, kv.11)

(ISOTOPES, eff.

radiocerium, blastomogenic eff. in rats (Rus))

(NEOPLASMS, exper.

blastomogenic eff. of radiocerium in rats (Rus))

STREL'TSOVA, V.N.; MOSKALEV, Yu.I.

Carcinogenic effect of a mixture of isotopes Sr^{89} and Sr^{90} in
rabbits. Vop.onk. 5 no.10:388-395 '59. (MIRA 13:12)
(STRONTIUM--ISOTOPES) (TUMORS)

MOSKALEV, Yu. I.

"Problems in the toxicology of radioactive substances" by [prof.]
D. I. Zakutinskii. Reviewed by Iu. I. Moskalev. Voen.-med. zhur. no. 8:
86-91 Ag '59. (MIRA 12:12)
(RADIOACTIVE SUBSTANCES--TOXICOLOGY) (ZAKUTINSKII, D. I.)

LEBEDINSKIY, A.V., prof.; MOSKALEV, Yu.I., doktor med.nauk

Some problems in modern radiobiology. Vest. AMN SSSR 14 no.9:3-16 '59.
(MIRA 13:1)

1. Chlen-korrespondent AMN SSSR (for Lebedinskiy)
(RADIATION EFFECTS)

MOSKALEV, Yu.I.

Role of the time factor in injuries caused by radioactive isotopes.
Biofizika 5 no. 2:202-207 '60. (MIRA 14:4)

(RADIOISOTOPES—PHYSIOLOGICAL EFFECT)

MOSKALEV, Yu.I.; KULIKOVA, V.G.; ROGACHEVA, S.A.

Distribution and excretion of Rb^{86} in rats. Med. rad. 5 no.4:
47-53 Ap '60. (MIRA 13:12)
(RUBIDIUM--ISOTOPES)

BULDAKOV, L.A.; MOSKALEV, Yu.I.; SEMENOV, D.I.

Distribution of cerium and ruthenium in the organs of the rat
following their administration by inhalation. Med.rad. 5 no.6:
42-47 '60. (MIRA 13:12)
(CERIUM IN THE BODY) (RUTHENIUM IN THE BODY)

MOSKALEV, Yu.I.

Activity of Te^{127} and Te^{129} in the animal organism. Med. rad. 5
no. 7:54-60 '60. (MIRA 13:12)

(TELLURIUM

LEBEDINSKIY, A.V.; MOSKALEV, Yu.I. (Moskva)

Some problems in modern radiobiology. Usp. sovr. biol. 49 no.3:320-
337 My-Je '60. (MIRA 13:7)

(RADIOBIOLOGY)

BULDAKOV, L.A.; MOSKALEV, Yu.I.

Migration of Sr^{90} in the biological chain: plant-sheep-fetus.
Biol. eksp. biol. i med. 50 no.10:111-113 0 '60. (MIRA 14:5)

1. Predstavlena deystvitel'nyy chlenom AMN SSSR V.N.Chernigovskim.
(STRONTIUM—ISOTOPES)

27 2400

2-235
S/581/61/000/000/006/020
D299/D304

AUTHOR. Moskalev, Yu. I.

TITLE Experimental justification of the maximum permissible limits of the content and entry of strontium-90 into the body

SOURCE Lebedinskiy, A. V. and Moskalev, Yu. I. eds. Biologicheskoye deystviye radiatsii i voprosy raspredeleniya radioaktivnykh izotopov; sbornik rabot Moscow, Gosatomizdat, 1961, 55-69

TEXT: This is a synthesis of the author's previous findings and the work of researchers on determination of the maximum permissible strontium-90 content and entry of this isotope into the human body by extrapolating from the results of similar experiments on animals. The biological action of Sr⁹⁰ is assessed from its blastogenic effects and the duration of the animals' life. A graph plotting the Sr⁹⁰ dose against its effect is adduced to show that

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Experimental justification

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D299/D304

the reaction has a definite threshold. The maximum ineffective dose of strontium-90 for rats (on a criterion of life duration) is 25-50 $\mu\text{c}/\text{kg}$ and for mice 44 $\mu\text{c}/\text{kg}$. Extrapolating from this and taking into account the difference in life expectancy between man and these animals, the author deduces that the maximum ineffective dose for a man of 70 kg is 50-100 μc . The blastomogenic activity of strontium-90 is expressed mainly in tumors of the bone, hemopoietic and endocrine systems. The maximum ineffective dose of strontium-90 for osteosarcomogenesis in rats is 5-50 $\mu\text{c}/\text{kg}$ and for mice 44 $\mu\text{c}/\text{kg}$. Transposing, as above, for man, the maximum ineffective single dose of strontium-90 is 10-100 μc . There appears to be no linear relationship between the dose of strontium-90 and the rate of the appearance of leukosis. Other findings indicate that the effects of strontium-90 are not fully summated, due to certain restorative processes which occur in the structures responsible for sarcomogenic degeneration of the cells. Lesions of the bone tissue induced by beta irradiation are summated better and restored with more difficulty than those induced by gamma-irradiation.

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S/581/61/000/000/006/020
D299/D304

Experimental justification...

tion during protracted irradiation Under the protracted action of small doses of strontium-90 the probability that osteosarcomata will develop is small. The author calls for more research to fix the minimum leukomogenic dose and the role of the time factor in leukosis due to strontium-90. Experiments with animals indicate that single parenteral injection of strontium-90 in a dose of 10 μ c does not affect the natural life span, rate of osteosarcomogenesis or leukosis in man. In view of the difference in life expectancy, the maximum ineffective dose of strontium-90 must be reduced 35-fold in extrapolating from rats to man. Analysis of the distribution of strontium-90 throughout the body shows that the maximum permissible dose in the human skeleton (MPD) should not exceed 1.5-2 μ c. This agrees with the formula:

$$MPD = 4.6D \quad (1)$$

where D = optimum osteosarcomogenic radiation dose (in μ c) for rats. For strontium-90 this is equal to 0.5 μ c/g, thus making MPD = 2.3 μ c. The equation is derived from comparison of the clinical and experimental research on the carcinogenic effects of radium Extrapolate

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S/581/61/000/000/006/020
D299/D304

Experimental justification...

ting from mice, the minimum effective dose (MED) of strontium 90 for man is 5-10 μc . Other authors quoted set it at 6-15 μc and approximately 4 μc . The author therefore concludes that the accepted international MPD of 1 μc is experimentally justified and is about 5 times less than the true MED. Further extrapolation from animals indicates that 0.2 μc of strontium-90 a day can enter the body per os to accumulate in the skeleton an MPD of 2 μc . An equation covering the accumulation and excretion of strontium-90 in the bones is given plus an equation for the excretion of strontium-90 from the bones of rats. From these it is deduced that protracted introduction of strontium 90 via the gastrointestinal tract gives a multiple of Sr^{90} accumulation in the human skeleton of 100-250. To reach an MPD of 1 μc some 0.004 μc of strontium-90 would therefore have to enter the body. The author concludes that the MPD of strontium-90 constitutes no genetic danger or, at least, a danger less than that from natural K^{40} and C^{14} radiation. There are 4 figures and 35 references: 27 Soviet-bloc and 8 non-Soviet-bloc. The 4

Card 4/5

29235

S/581/61/000/000/006/020
D299/D304

Experimental justification...

most recent references to English-language publications read as follows: W.R. Eckelmann, J.L. Kulp, A.R. Schulert, Science, 127, 3293, 266 (1958); M.P. Finkel, Science, 128, 3325, 637 (1958); M. Hindmarch, M. Owen, J. Vaughan, Brit. J. Radiol., 32, 372, 183 (1959); M. Hindmarch, M. Owen, J. Vaughan, L.P. Lamerton, F.W. Spiers, Brit. J. Radiol., 31, 370, 518 (1958).

Card 5/5

MOSKALEV, Yu.I.

Accumulation of strontium-90 in rat bones and the kinetics of its
elimination. Radiobiologiya 1 no.1:65-69 '61. (MIRA 14:7)
(STRONTIUM--ISOTOPES) (BONES)

MOSKALEV, Yu.I.; BULDAKOV, L.A.; STREL'TSOVA, V.N.

Relation between the biological effect of plutonium and the rhythm
of its introduction into the organism. Radiobiologiya 1 no.2:250-
256 '61. (MIRA 14:7)

(PLUTONIUM--PHYSIOLOGICAL EFFECT)

S/205/61/001/004/004/032

D298/D303

AUTHORS: Buldakov, L. A., and Moskalov, Yu. I.

TITLE: Distribution of plutonium-239 in the skeleton and liver of rats and the kinetics of its excretion in relation to the dose and rhythm of the isotope's administration

PERIODICAL: Radiobiologiya, v. 1, no. 4, 1961, 487-492

TEXT: Due to the absence of suitable published data, the authors studied the distribution of plutonium in the bones and liver of rats after single administration of various quantities of the isotope. The tests were run on rats injected intra-abdominally with 0.25, 0.5, 1.0, 2.0 and 4.0 μC in a single or fractional dose. In the case of fractional doses, the plutonium was administered daily for 50 or 100 days; once a week for 8 weeks; or once a fortnight for 18 weeks. At various stages after its introduction, the plutonium content in the hip-bone and liver was determined. The results were expressed in percentages of the

Card 1/3

Distribution of...

S/205/61/001/004/004/032
D298/D303

amount of plutonium administered to the whole body. The plutonium excretion constants (λ) from the skeleton and the liver were found by the method of least squares. The results showed that the distribution, relative retention and rate of excretion of the plutonium from the skeleton and liver did not depend on the amount of radioactivity introduced. Within two months of single injection, the main amounts of the isotope were found in the skeleton (up to 58%) and the liver (up to 5.2%). After both single and prolonged administration, plutonium excretion from the skeleton is subject to the exponential law. When administered in a single dose, the biological period of half-excretion is equal to ≈ 530 , and in a fractional dose to 410 days, while the excretion constants were 0.0013 and 0.0017 respectively. With prolonged administration, plutonium deposition in the bone tissue gradually decreases. After a single dose of plutonium, excretion from the liver is subject to the exponential law, and after fractional administration - to the power function. With single administration the period of half-excretion from the liver is equal to 195 days. There are 3 figures, 1 table, and 3 non-Soviet-Bloc references. The references to the English-language publications read as follows:

Card 2/3

Distribution of...

S/205/61/001/004/004/032
D298/D303

J. Carrit, R. Frixell, J. Kleinschmidt, R. Kleinschmidt, W. Langham,
A. Pietro, R. Schaffer, B. Schnap, J. Biol. Chem., 171, 273, 1947;
D. M. Copp, J. G. Axelrod, J. Hamilton, Amer. J. Roentgenol., 58, N 1,
10, 1947; K. G. Scott, D. J. Axelrod, H. Fisher, J. Crowley, J. Hamilton,
J. Biol. Chem., 176, 283, 1948.

SUBMITTED: March 10, 1961

Card 3/3

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BULDAKOV, L.A.; MOSKALEV, Yu.I.; STREL'TSOVA, V.N.

Data on the biological activity of plutonium-239. Biul.
eksp. biol. i med. 52 no.11:57-61 N '61. (MIRA 15:3)

1. Predstavlena deystvitel'nym chlenom AMN SSSR A.V.
Lebedinskim.

(PLUTONIUM--ISOTOPES)

44072

S/742/62/000/000/014/021
I015/I215

271220
AUTHORS: Moskalev, Yu.I., Buldakov, L.A., Strel'tsova, V.N.

TITLE: The effect of plutonium-239 on the rat

SOURCE: Plutoni-239; raspredeleniye, biologicheskoye
deystviye, uskoreniye vyvedeniya. Ed. by A.V.
Lebedinskiy and Yu.I. Moskalev. Moscow, Medgiz,
1962, 86-91

TEXT: The biological effect of alpha-rays of plutonium has been
insufficiently studied. Experiments were carried out on 269 albino
rats weighing 162 ± 3.3 - 201 ± 7.5 g. A single dose of 1.25, 2.5,
5.0, 10.0, 20.0, 40.0 and $80.0 \mu\text{Ci/kg}$ b.w. of plutonium citrate (pH =
6.0) was administered i.p. The blood cells and the hemoglobine as
well as weight changes and the survival were investigated in all the
animals. The survival-dose relationship was inversely dependent :

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8/742/62/000/000/014/021
I015/I215

The effect of plutonium-239...

LD_{50/30}, LD_{50/80}, LD_{50/120} and LD_{50/360} corresponded to 59, 31, 24.5 and 11.0 $\mu\text{Cu/kg}$ b.w. Plutonium-239 showed threshold characteristics as far as survival is concerned and the maximal non-effective dose was 2.5-5.0 $\mu\text{Cu/kg}$ b.w. The body weight decreased readily only at doses larger than 40.0 $\mu\text{Cu/kg}$ b.w. Leucopenia developed following all the doses of Pu but its extent was directly dependent upon the magnitude of the dose. Doses of 2.5 - 80.0 $\mu\text{Cu/kg}$ b.w. brought about an irreversible decrease in number of leucocytes. The RBC count following doses of 2.5 - 5.0 $\mu\text{Cu/kg}$ b.w. increased at the beginning and subsequently returned to the initial values. Larger doses brought about a steady decrease in the RBC count 14 - 30 days after the injection. The hemoglobine changes corresponded to the alterations in RBC count. There are 2 figures and 4 tables.

Card 2/2

KRAYEVSKIY, N.A.; STREL'TSOVA, V.N.; MOSKALEV, Yu.I.

Elastomogenic action of small quantities of radioactive isotopes.
Med.rad. 7 no.7:68-72 J1 '62. (MIRA 15:11)
(RADIOISOTOPES—PHYSIOLOGICAL EFFECT)
(CARCINOGENESIS)

MOSKALEV, Yu. I., PETROVICH, I. K., STREL'TSOVA, V. N.,

"Biological effect of fast neutrons and protons of high energy"

report to be submitted for the Symposium on Biological Effects of Neutron Irradiations
(IAEA), Upton Long Island, N. Y., 7-11 Oct 63.

ACCESSION NR: AP4001907

s/0205/63/003/006/0785/0794

AUTHOR: Petrovich, I. K.; Moskalov, Yu. I.

TITLE: Biological action of fast neutrons

SOURCE: Radiobiologiya, v. 3, no. 6, 1963, 785-794

TOPIC TAGS: neutron biological effect, fast neutron, neutron irradiation, radiation dose effect, neutron radiation effect

ABSTRACT: The effect of a single fast neutron radiation dose on the life expectancy and the morphological composition of peripheral blood was studied in white rats. Animals (2.5-3 mos old) were irradiated with a mixed beam of fast neutrons and gamma-quanta on an atomic reactor with single doses ranging from 8.5 to 510 rads at the rate of 5.1 rad/min. The ratio of fast neutrons to gamma-quanta in the beam was 9:1 and the average energy of the beam was 2 Mev. Biological effectiveness of the fast neutrons was determined by Miller and Tainter's method which finds the lethal dose that will kill 50% of the animals within 15, 30, 60, 120, 240, 360 and 420 days. Life expectancy was also determined. Erythrocyte, leukocyte, neutrophil and lymphocyte levels were investigated at different periods from 1 to 28

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ACCESSION NR: AP4001907

days before irradiation and every month for 25 mos after irradiation. Results show that the death of 50% of the animals within 15, 30, 60, 120, 240, 300 and 420 days is caused by these corresponding fast neutron doses: 408, 408, 408, 380, 362, 316, and 299 rads. With 170 and 340 rad doses some animals die early and others die later in the experiments. With no homogeneity in the life expectancy curve for these two doses, a more detailed study of the types of death for the different time periods should be made. The shape of the dose-effect curve for the various peripheral blood elements (neutrophils, lymphocytes, and erythrocytes) may be quite different for the same indices depending on time of observation. In addition to radiation dose, the regenerative and compensatory processes of the individual organism also play an important role in determining the reaction of the organism to fast neutron radiation doses. Orig. art. has: 5 figures, 4 tables.

ASSOCIATION: None,

SUBMITTED: 01Oct62

DATE ACQ: 13Dec63

ENCL: 00

SUB CODE: AM

NO REF SOV: 005

OTHER: 007

Card 2/2

MAKALIV, Yu.I.

Problems of ...
Medical Commission, November 1955, ...
ence in ... November 1955, ...
tentia ... of the ...
nat. 8 no. ...

MOSKALEV, Yu.I., doktor med. nauk, prof.

International Conference on Diagnosis and Treatment of
Poisonings by Radioactive Isotopes. Med. rad. 8 no.8:
77-87 Ag '63.

(MIRA 17.10

L 13402-63

BDS/EWT(1)/EWT(m)/ES(j) AFFTC/ASD AR/K

ACCESSION NR: AP3001508

5/0219/63/055/005/0073/0077

AUTHOR: Moskalev, Yu. I.; Petrovich, I. K.

55

TITLE: Biological action of high energy protons (500 Mev)

SOURCE: Bulleten' eksperimental'noy biologii i meditsiny, v. 55, no. 5, 1963, 73-77

TOPIC TAGS: protons, radiation, blood, dose-effect curves

ABSTRACT: The biological action of ionizing radiation is affected not only by dose amount but by the nature of the radiation itself. Little is known about the action of high energy protons and therefore the author investigates their effect on peripheral blood. White rats were irradiated in single doses ranging from 28 to 1008 rads with a synchrocyclotron. Proton radiation energy was 500 Mev and the dose rate was from .7 to 2.3 rad/sec. LD sub 50 for 30 to 120 days was 600 plus minus 35 rads and for 15 days was 710 plus minus 45 rads. In the initial period (up to 28 days) after irradiation, the most important changes take place in the white blood which is characterized by neutropenia and lymphopenia. After 6 to 7 months the most significant changes take place in red blood. The authors stress that the

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L-13402-63

ACCESSION NR: AP3001508

dose-effect curve for certain red and white blood elements under ionizing radiation action does not have to be linear or S-shaped. The dose-effect curve may have different forms because of varying radiosensitivity and reaction rates. Fig. 2 shows dose-effect curves for erythrocytes, lymphocytes, and neutrophils at different time intervals. The dose-effect curves for peripheral blood elements irradiated with high energy protons depend on blood cell properties and length of observation period. It appears that over a period of time increased radiation dose does not necessarily increase the effect. Length of observation period should be an important factor in future investigations of high energy proton action. Papers presented by A. V. Lebedinskiy, Member of AMN SSSR. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 10Jul62

DATE ACQ: 12Jun63

ENCL: 00

SUB CODE: AM

NO REF SOV: 003

OTHER: 006

Card 2/2

MOSKALEV, Yu.I., prof., red.; LANDAU-DEKHA, S.P., red.

[Distribution, biological effect, acceleration of the
excretion of radioactive isotopes] Raspreделение, biolog-
icheskoe deistvie, uskoreniye vyvosheniya radioaktivnykh
izotopov; sbornik rauch. Moskva, Meditsina, 1964. 374 s.
(MIRA 17:9)

STREL'TSOVA, Vera Nikolayevna; MOSKALEV, Yuriy Ivanovich;
LANDAU-TYLKINA, S.P., red.; LYUDKOVSKAYA, N.I., tekhn.
red.

[Blastomogenic effect of ionizing radiation] Blastomogen-
noe deistvie ioniziruiushchei radiatsii. Moskva, Meditsina,
1964. 382 p. (MIRA 17:3)

GRAYEVSKIY, E.Ya.; KOROGODIN, V.I.; KUMIN, A.N., I. KUMARIN,
Yu.I.; SPIRIN, K.N.; STREL'KOVA, V.N.; SHAFIN, N.I.,
doktor biol. nauk; SHIKHAYEV, V.I.; BYKOV, I.K.;
ALEKSAKHIN, A.N., red.

[Principles of radiobiology Osnovy radiatsionnoi bio-
logii. Moskva, Nauka, 1974. 40. p. (11A 18:1)]

1. Akademiya nauk SSSR. Institut biologicheskoy fiziki.
2. Chlen-korrespondent AN SSSR (for Kumin).

L 34914-65

S/0000/64/000/000/0023/0028

ACCESSION NR: AT5006101

AUTHOR: Moskalov, Yu. I. (Professor); Semenov, D.I.; Buldakov, L.A.

TITLE: Distribution of yttrium-91, zirconium-95, and niobium-95 in rats after inhalation

SOURCE: Raspredeleniye, biologicheskoye deystviye, uskoreniye vyvedeniya radioaktivnykh izotopov (Distribution, biological effect, acceleration of the excretion of radioactive isotopes); sbornik rabot. Moscow, Izd-vo Meditsina, 1964, 23-28

TOPIC TAGS: yttrium-91, zirconium-95, niobium-95, radioisotope, inhalation, lung, intestine, skin, muscle, liver, blood, half-life

ABSTRACT: From 15 minutes to 6 hours after inhalation, most of the activity is found in the head (about 63.25%), gastrointestinal tract (about 64.35%), skin (29.67%), and lungs (about 11.77%). The lungs retained about 13% of the inhaled Y^{91} , Zr^{95} , and Nb^{95} . 15-17% of the yttrium, zirconium, and niobium was eliminated from the lungs with a biological half-life of 8.7-10.2 days, 47-55% of yttrium and zirconium with a biological half-life of 8.7-10.2 days, 47-55% of yttrium and zirconium with a biological half-life of 2.1 and 1.95 days, respectively, and 30-36% of the two isotopes with a biological half-life of 0.19 and 0.15 days. A compari-

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L 34914-65

ACCESSION NR: AT5006101

son of the distribution of the radioisotopes in relation to the route of entry showed that after inhalation the portion of yttrium resorbed from the lungs was distributed the same way as when it was injected intravenously. Soon after inhalation, more zirconium was found in the skeleton and less in the liver than after intravenous injection. The amount of niobium deposited in the skeleton, kidneys, and muscles was greater after inhalation than after intravenous injection, but less was deposited in the liver and blood. These differences in distribution were obliterated by the 16th day of the experiment. Orig. art. has: 2 figures, 4 tables.

ASSOCIATION: none

SUBMITTED: 10Apr64

NO REF SOV: 000

ENCL: 00

OTHER: 000

SUB CODE: LS

Card 2/2

L 34915-65

ACCESSION NR: AT5006102

S/0000/64/000/000/0029/0034

AUTHOR: Moskalev, Yu. I. (Professor)

TITLE: Distribution of the radium isotope thorium-X

SOURCE: Raspredeleniye, biologicheskoye deystviye, uskoreniye vyvedeniya radioaktivnykh izotopov (Distribution, biological effect, acceleration of the excretion of radioactive isotopes); sbornik rabot. Moscow, Izd-vo Meditsina, 1964, 29-34

TOPIC TAGS: thorium-X, radioisotope, radium, bone, thyroid, muscle, gastric mucosa, radioactivity

ABSTRACT: When ThX is injected intravenously, the amount of radium concentrating in the bones, kidneys, salivary glands, thyroid, and gastric and intestinal mucosa is higher than in other tissues. The diaphysis contains less radium than does the epiphysis. The distribution of ThX varies with the age of the animal. More ThX is deposited in the bones of young rats than in the bones of old rats. On the other hand, less ThX accumulates in the soft tissues of old animals than in the tissues of young animals. Adult rats excrete more ThX with urine than do young rats. ThX is rapidly absorbed from muscular tissue--more than 60% within an hour and about 95% within 24 hours. The absorption of ThX proceeds more slowly in adult rats than

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L 34915-65

ACCESSION NR: AT5006102

0

it does in young, rapidly growing animals. There seems to be a connection between the excretory functions of the gastrointestinal tract and the kidneys. For example, one of the experimental rats that excreted 3.6% more radium with feces than did another animal excreted the same amount less (by 3.23%) with urine. Orig. art. has 6 tables.

ASSOCIATION: none

SUBMITTED: 10Apr64

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 000

Card 2/2

L 34932-65
ACCESSION NR: AT5006105

S/0000/64/000/000/0052/0070

AUTHOR: Moskalay, Yu. I. (Professor)

15
241

TITLE: Distribution of antimony-124 and tellurium-127

SOURCE: Raspredeleniye, biologicheskoye deystviye, uskoreniye vyvedeniya radio-aktivnykh izotopov (Distribution, biological effect, acceleration of the excretion of radioactive isotopes); sbornik rabot. Moscow, Izd-vo Meditsina, 1964, 62-70

TOPIC TAGS: antimony-124, tellurium-127, radioisotope, urine, radioactivity, liver, muscle, bone, blood, lung, kidney, gastrointestinal tract

ABSTRACT: About 75% of the antimony injected into rats intravenously (in the form of antimonyl potassium tartrate) was excreted with urine during the first 24 hours of the experiment. Comparatively little of the isotope was retained in the organs: 10.7% in the liver, 2.2% in the skeleton, 0.91% in the blood, and 0.73% in the muscles. After oral administration, most of the Sb^{124} was excreted with feces (about 94% during the 3 days of the experiment). The amount of Sb^{124} absorbed from the gastrointestinal tract was about 3%.

After intravenous injection, Te^{127} was distributed comparatively uniformly

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in the various organs. It was slowly cleared from the blood, kidneys, lungs, and skin. Most of the tellurium was deposited in the blood (18.6%), muscles (11.9%), liver (9.7%), skeleton (8.6%), and kidneys (2.5%). After oral administration, 10-25% of the Te^{127} was absorbed. The Te^{127} absorbed from the gastrointestinal tract was deposited, as in the case of intravenous injection, mainly in the blood (1.95%), muscles (1.19%), liver (0.41%), skeleton (0.39%), and kidneys (0.22%).
Orig. art. has 12 tables.

ASSOCIATION: none

SUBMITTED: 10Apr64

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 000

Card 2/2

ZEDGENIDZE, G.A.; GORIZONTOV, P.D.; MOSKALEV, Yu.I.; SVYATUKHIN, I.S.;
KOROGODIN, V.I.; KOSTELIANTS, B.L.; STRELIN, G.S.

Brief news. Med. rad. 9 no.2:74-84 D '64.

(MIRA 18:12)

1. Yakovlev, I.N. (Moskva); Yakovlev, V.I. (Moskva); Petrovich, I.I. (Moskva)

Самолетов, в том числе истребителей. Всп. полк. 10 н.9:
МВР [8-...]

1 34931-65

ACCESSION NR: AT5006107

S/0000/64/000/000/0078/0082

AUTHOR: Moskalev, Yu. I. (Professor)

12

B+1

TITLE: Distribution of tin-113

SOURCE: Raspredeleniye, biologicheskoye deystviye, uskoreniye vyvedeniya radioaktivnykh izotopov (Distribution, biological effect, acceleration of the excretion of radioactive isotopes); sbornik rabot. Moscow, Izd-vo Meditsina, 1964, 78-82

TOPIC TAGS: tin-113, radioisotope, liver, spleen, bone marrow, bone, kidney, brain, testes, radioactivity

ABSTRACT: Study of the distribution of various Sn^{113} compounds in relation to the method of administering the isotope to rats. After parenteral injection, the concentration of tin was highest in the liver, spleen, bone marrow, skeleton, and kidneys. It was lowest in the brain (0.07%) and testes (0.06%). The pattern of distribution and method of excretion of the isotope varied with the pH and compound used (simple salt, complex compound). About 20% of Sn^{113} was absorbed after oral administration. The nature of the distribution was the same as after parenteral injection. Orig. art. has 5 tables.

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ACCESSION NR: AT5006107

ASSOCIATION: none

SUBMITTED: 10Apr64

NO REF SOV: 000

ENCL: 00

OTHER: 000

SUB CODE:

LS

Card 2/2

L 34930-65

S/0000/64/000/000/0083/0093

ACCESSION NR: AT5006108

AUTHOR: Moskalev, Yu. I. (Professor)

TITLE: Distribution of a mixture of cerium-144 and strontium-89, 90

SOURCE: Raspredeleniye, biologicheskoye deystviye, uskoreniye vyvedeniya radio-aktivnykh izotopov (Distribution, biological effect, acceleration of the excretion of radioactive isotopes); sbornik rabot. Moscow, Izd-vo Meditsina, 1964, 83-93

TOPIC TAGS: cerium-144, strontium-90, radioisotope, gastrointestinal tract, bone, liver, muscle, radioactivity

ABSTRACT: After intravenous injection of a mixture of the radioactive isotopes of cerium and strontium to rats, most of the activity was concentrated in the skeleton (46.6%) and liver (26%). The lowest concentration of activity was noted in the brain, testes, and muscles. The mixture was excreted chiefly with the feces. After oral administration, the resorbed radioactive substances were deposited almost exclusively in the skeleton (about 18.6%). When introduced into the stomach, the mixture of radioactive strontium and cerium left the stomach and small intestine during the first 6 hours of the experiment. The small intestine was the principal site of absorption and excretion of the radioactive mixture. The experiments

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L 34930-65

ACCESSION NR: AT5006108

clearly showed that when the two isotopes were administered simultaneously, each followed its own distribution pattern independently of the other. Orig. art. has: 6 figures, 5 tables.

ASSOCIATION: none

SUBMITTED: 10Apr64

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 000

Card 2/2

L 34926-65

ACCESSION NR: AT5006120

S/0000/64/000/000/0161/0164

AUTHOR: Moskalev, Yu. I. (Professor)

10

B41

TITLE: Distribution of lead (thorium B) after intra-arterial and intravenous injection

SOURCE: Raspredeleniye, biologicheskoye deystviye, uskoreniye vyvedeniya radioaktivnykh izotopov (Distribution, biological effect, acceleration of the excretion of radioactive isotopes); sbornik rabot. Moscow, Izd-vo Meditsina, 1964, 161-164

TOPIC TAGS: thorium, radioisotope, lead, vascular system, bone, kidney, bone marrow, muscles, radioactivity, lung

ABSTRACT: The results of experiments performed on 11 rabbits showed that the distribution of ThB varies with the method of administration of the isotope. Relatively more of it was found in the kidneys, liver, spleen, and blood after intravenous injection than after subcutaneous or intra-arterial injection. After intravenous injection it was most abundant in the kidneys; after intra-arterial injection--in the kidneys and bone marrow on the side of the injection site. After intra-arterial injection, bone, bone marrow, and muscular tissue on the side of the injection site contained 10-18 times more activity than after intravenous or subcutaneous injection.

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tion. The liver, kidneys, lungs, and spleen contained almost half as much ThB after subcutaneous injection as after intravenous or intra-arterial injection, showing that absorption of the isotope from subcutaneous tissue was comparatively slow and incomplete.

The results of experiments on 15 rats show that the distribution of ThB differs markedly, depending on whether it is injected into the mesenteric or tail vein. A day after injection into the mesenteric vein, the liver contained 3.3 times more ThB than after injection into the tail vein. The author considers his findings of significance not only for what they indicate about the nature of isotope distribution in relation to the route of entry into the body, but for the light they may throw on several problems in physiology pertaining to the mechanism of action of stimulants following intravenous and intra-arterial injection. Orig. art. has 4 tables.

ASSOCIATION: none

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ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 000

Card 2/2

2 34112-45 EWG(3)/EWT(m) GS
ACCESSION NR: AT5006123

S/0000/64/000/000/0192/0201

AUTHOR: Moskalev, Yu. I.; Strel'tsova, V. N.; Teplinskaya, G. N.

TITLE: Biological effects of strontium-90 in relation to the duration and frequency of uptake of the isotope

SOURCE: Raspredeleniye, biologicheskoye deystviye, ukoreniye vyvedeniya radioaktivnykh izotopov (Distribution, biological effect, acceleration of the excretion of radioactive isotopes); sbornik rabot. Moscow, Izd-vo Meditsina, 1964, 192-201

TOPIC TAGS: strontium-90, radioisotope, radioactivity, blood, tumor, leukemia

ABSTRACT: The results of experiments on 699 white rats showed that the rate of administration of strontium-90 as well as the dose markedly contributed to the biological effects of the isotope. For example, shortening of the survival time, lag in weight increase, degree of leukopenia and thrombocytopenia, and frequency of osteosarcomas were greatest after a single administration of strontium-90. On the other hand, the development of anemia and leukemia was not related to the frequency of uptake of the isotope, which indicates that after Sr^{90} lesions the processes of summation and regeneration in different tissues took place at different rates. This was also true of the erythrocyte series. The values of $LD_{50/240}$ after a single

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L 34111-65

ACCESSION NR: AT5006123

administration of Sr^{90} were 224 and 126 μc per rat; with daily administration for 100 days, they were 776 and 209 μc per rat, respectively. Orig. art. has: 6 figures, 3 tables.

ASSOCIATION: none

SUBMITTED: 10Apr64

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 000

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MOSKALEV, Yu.I.

Results of the conference of experts on the research program
of the International Agency for the Utilization of Atomic Energy
in the field of the toxicology of incorporated radioactive isotopes
(Vienna. June, 1963). Med. rad. 9 no.2:104-107 F '64.
(MIRA 17:9)

ACCESSION NR: AP4015151

S/0219/64/057/002/0033/0038

AUTHOR: Petrovich, I. K.; Moskalev, Yu. I.

TITLE: Dynamics of white blood cell reaction to irradiation

SOURCE: Byul. ekspor. biologii i meditsiny*, v. 57, no. 2, 1964, 33-38

TOPIC TAGS: white blood cell, 50 r X-irradiation dose, 12,000 r X-irradiation dose, lymphocyte level change, neutrophil level change, early radiation damage, early radiation change, lymphocyte dose-effect curve, neutrophil dose-effect curve

ABSTRACT: Early lymphocyte and neutrophil reactions were investigated in 70 white rats exposed to single dose X-irradiation ranging from 50 to 12,000 (12 tube X-ray unit, 126 r/min). Total number of leukocytes was investigated at frequent periods from 5 to 1440 min after irradiation. Absolute number counts of neutrophils, lymphocytes, monocytes and damaged cells were made for the blood of surviving animals and qualitative changes were determined for white blood cells. Results disclose a substantial difference in early reactions of lymphocytes

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ACCESSION NR: AP4015151

and neutrophils to X-irradiation. Ten minutes after irradiation the lymphocytes react to radiation doses as low as 50 r, but neutrophils react only to 8000 r doses or higher at this time. With increased radiation doses the lymphocyte level declines and reaches its lowest level after 1-2 days. The neutrophil level does not decline, but rises the first few days with increased radiation doses. The dose-effect curves for lymphocytes and neutrophils differ in shape and time and require further study to determine the mechanism of these changes. Orig. art. has: 3 figures.

ASSOCIATION: None

SUBMITTED: 19Jan63

DATE ACQ: 12Mar64

ENCL: 00

SUB CODE: 13

NR REF SOV: 006

OTHER: 007

Card 2/2

ACCESSION NR: AP4015151

and neutrophils to X-irradiation. Ten minutes after irradiation the lymphocytes react to radiation doses as low as 50 r, but neutrophils react only to 8000 r doses or higher at this time. With increased radiation doses the lymphocyte level declines and reaches its lowest level after 1-2 days. The neutrophil level does not decline, but rises the first few days with increased radiation doses. The dose-effect curves for lymphocytes and neutrophils differ in shape and time and require further study to determine the mechanism of these changes. Orig. art. has: 3 figures.

ASSOCIATION: None

SUBMITTED: 19Jan63

DATE ACQ: 12Mar64

ENCL: 00

SUB CODE: 13

NR REF SOV: 006

OTHER: 007

Card 2/2

MOSKALEV, Yu.I.; OBVINTSEV, G.V.; GRINEV, V.S. (Moskva)

Kinetics of the excretion of Nb⁹⁵ from the organism; experimental study. Med. rad. 10 no.1:28-29 Ja '65. (MIRA 18:7)

L 53971-65 EWG(j)/EWI(m)
ACCESSION NR: AP5011234

UR/0241/65/010/004/0053/0059
614.849.7-015+615.849.7-033

AUTHOR: Moskalev, Yu. I.

TITLE: Distribution and biological action of radioisotopes

SOURCE: Meditsinskaya radiologiya, v. 10, no. 4, 1965, 53-59

TOPIC TAGS: radioisotope, tumor etiology, reticuloendothelial system, bone, liver, muscle, spleen, bone marrow

ABSTRACT: Analysis of the author's own data and the literature shows that radioisotopes differ considerably from one another in distribution and routes of elimination from the body. Some (Ca, Sr, Ba, Ra, Y, Zr, Pu) are markedly osteotropic; others (Ce, La, Pm, Pr, Am, Cm) are selectively deposited in the liver; others (K, Cs, Rb), in the muscles; still others (Nb, Ru, Te, Po) are distributed fairly uniformly with a tendency to concentrate in reticuloendothelial tissue of the spleen, bone marrow, adrenals, and lymph nodes. Within the separate groups in the periodic system the distribution of elements has much in common. For example,

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